at a second angle β which is non-congruent to said first angle θ. This design construction allows the prosthesis to be thin-walled, compliant, and more flexible, because it provides structural integrity using less covering in the form of securement member 20. When securement member 20 is angled at a different angle (as compared to angle θ between the stent windings and axis) to longitudinal axis 22, it allows the securement of the stent to the graft using less material than previously used in prostheses of this type. More specifically, the angular arrangement of the securement member allows a thin securement member, which allows for a more flexible, and thinner composite prosthesis. Both angle θ and angle β may equal any value from 0° to 180° with respect to longitudinal axis 22.

[0038] As mentioned above, a stent is preferably mounted on the exterior surface of tubular member 18. Securement member 20 is then helically wrapped around tubular member 18 at angle β with respect to longitudinal axis 22 of tubular member 18. Securement member 20 may be wrapped completely exteriorly of stent 4, or it may be interwoven between stent 4 and the exterior surface of tubular member 18. Securement member 20 is then adhered to tubular member 18. Adherence is typically accomplished by sintering the composite prosthesis. Sintering, as used in the present disclosure means heating the composite prosthesis to a temperature below its melting point, yet sufficient to thermally adhere the prosthesis. The heat of sintering differs for different materials. An adhesive may be used with the sintering process or the securement member may be adhered with an adhesive without sintering.

[0039] The securement member 20 ensures the integrity of the composite prosthesis. The securement member is typically adhered to the tubular member in some manner, and may weave in and out of the leg segments of the stent in order to securely attach the stent. The term adhered as used in this disclosure refers to the attaching of the securement member to the tubular member in any manner. It includes without limitation, lamination, thermally adhering, sintering, RF welding, attaching with an adhesive, and any combination of the above. The securement member may be adhered noncontinuously at selected areas, or may be continuously adhered throughout its entire length.

[0040] Referring now to Figure 5 of the drawings, securement member 20 may be wound at more than one angle with respect to the longitudinal axis 22. Directional arrows 26 and 28 show the different orientation (as well as the different angles they make as compared to the longitudinal axis 22) of the securement member with respect to longitudinal axis 22. When the securement member is orientated in two different directions with respect to the longitudinal axis as shown in Figure 5, the securement member may intersect other helically oriented strips of the securement member to form nodes of intersection 30. Securement member 20 may be adhered to itself at nodes 30, or may be adhered to itself, as well as the tubular member. Preferably securement member 20 is sintered to itself at the segment it intersects, as well as to the tubular prosthesis at node 30.

[0041] Figure 6 shows another embodiment of the prosthesis of the present invention. Similar to the stent in Figure 3, elbows of coincidence 16 are formed where the successive upper and lower wave-like peaks meet in successive stent windings. Thin suture 32 forms a loop around the peaks at the elbows of coincidence. In this manner, suture 32 forms eyelets 34 holding the successive peaks together at elbows 16. Suture 32 may be adhered to the tubular member at eyelets 34, preferably by lamination.

[0042] Figure 7 shows another embodiment of the present invention. Securement member consists of thin suture 32, which attaches stent 38 to tubular member 40 by forming loops 36 around leg segments 42 of stent 38. Suture 32 may be adhered to the tubular member along its length. The loops 36 are preferably adhered to the tubular member under leg segments 42 of the stent around which the loop is formed. The loops may also take the form of knots of different configurations and may be tied around the stent in many alternative methods.

[0043] Figure 8 shows yet another embodiment of the present invention. Stent 44 is in a nested configuration. Thin suture 32 forms loops 36 at wave-like peaks 46 in order to secure the stent to the tubular member. Similar to the prosthesis shown in Figure 7, the loops 36 are

preferably adhered to the tubular member under the stent at loop 36.

[0044] Various changes to the foregoing described and shown structures would now be evident to those skilled in the art. Accordingly, the particularly disclosed scope of the invention is set forth in the following claims.